

WE CLAIM:

1. For use in a network environment composed of one or more host computers and one or more disk controllers, each of said disk controllers controlling storage media according to an instruction from the host computers, each of said disk controllers comprising a plurality of controllers each having one port or a plurality of independent ports for controlling a bus protocol between the host computers and storage systems and a cache mechanism for temporarily storing host data,

wherein said port executes a request from the host computers and, at the same time, transfers storage medium data to other storage controllers.

2. The disk controller according to claim 1, wherein said disk controller uses a function as claimed in claim 1 to execute backup processing via a port via which online processing is being executed.

3. The disk controller according to claim 1, wherein, when said disk controller has the plurality of independent ports, a user may specify whether the ports are for online processing, for backup processing, or for both online processing and backup processing.

4. The disk controller according to claim 1, wherein, when said disk controller has the plurality of independent ports and all the ports are being used for online processing, said disk controller

selects a port with a light online processing load from the plurality of ports in response to a backup instruction from the host and executes backup processing via the port.

5. The disk controller according to claim 1, wherein, when said disk controller has the plurality of controllers each having one port or the plurality of ports, the disk controller selects a port with a light online processing load from the plurality of ports of the plurality of controllers in response to a backup instruction from the host and executes backup processing via the port.

6. The disk controller with the plurality of ports according to claim 4, wherein said disk controller selects the port with a light online processing load from the plurality of ports in response to the backup instruction from the host and executes the backup processing via the port and, at the same time, dynamically checks a load of the port to switch the port to another lightly-loaded port even during the backup processing.

7. The disk controller according to claim 6, wherein the port switching for the backup processing is done between the plurality of ports across the controllers.

8. The disk controller according to claim 1, wherein backup processing is executed via the plurality of ports at the same time to reduce a backup

processing time.

9. The disk controller according to claim 1,  
wherein the control as claimed in claims 2-8  
is done by one processor in each controller.

10. The disk controller according to claim 1,  
wherein, when said disk controller has the  
plurality of controllers and a controller with a port  
via which backup processing is being executed fails,  
the controller is switched to another controller  
without host computer intervention and the backup  
processing is continued via a port of the new  
controller.

11. The disk controller according to claim 1,  
wherein data is duplexed in storage areas on  
two different storage media for backup processing.

12. The disk controller according to claim 1,  
wherein, when a backup request is sent from a  
host computer, said disk controller executes backup  
processing to some other storage system and duplexing  
data stored in a specified storage area at the same  
time without waiting for completion of the duplexing.

13. The disk controller according to claim 1,  
wherein the duplexing processing and the  
backup processing as claimed in claim 12 are executed  
in such a way that the duplex processing and the backup  
processing are executed at the same time or only  
duplexing processing is executed (that is, data is  
frozen in snapshot image at this time) and the backup

processing is executed at some other time (for example, at night).

14. The disk controller according to claim 1, wherein a user may specify a time at which the duplexing processing and the backup processing as claimed in claim 12 are executed.

15. The disk controller according to claim 1, wherein backup processing executed during online processing is scheduled in such a way that online processing performance is not degraded.

16. The disk controller according to claim 1, wherein a user may specify a balance between the online processing and the backup processing of the schedule as claimed in claim 15.

17. Storage system for data backup comprising:  
a plurality of disk devices storing data from a host, and

a disk controller connecting to said host and said plurality of disk devices to transferring said data between said host and said plurality of disk devices,

wherein said disk controller having a port controller which connects to a host and other storage systems and comprises one processor which transfers said data in said plurality of disk devices to said other storage systems and transfers said host and said plurality of disk devices.

18. Storage system according to claim 17 further

comprising a plurality of said port controllers.

19. Storage system according to claim 18 further comprising a disk array controller,

wherein said disk array controller comprising a memory stored a performance of said plurality of port controllers, and

a processor selecting one of said plurality of port controllers to execute data backup according to said performance.

20. Storage system according to claim 19,

wherein said processor ins aid disk array controller stores process type information into said memory, and makes each port controller execute based on said process type information.

21. Storage system according to claim 20,

wherein said process type information is at least one of online process only, backup process only or online and backup processes.

22. Storage system according to claim 19, said disk controller further comprising,

a plurality of storage controllers having said disk array controller and a plurality of port controllers, and wherein said disk array controllers are connected to each other.

23. Storage system according to claim 22, wherein said processor of said disk array controller in said storage controller refers to said performance stored in said memory of said storage controller and said

performance stored in said memory of other storage controller, and select at least one of port controllers to execute.

24. Storage system according to claim 23, said storage controller further comprising:

an error controller to detect an error in said storage controller,

wherein said error controller connects to said disk array controller and another error controller in another storage controller, and sends said error received from said another error controller to said disk array controller,

and said disk array controller makes said port processor continue executing a backup task in said error storage controller.

25. Storage system according to claim 22, wherein said processor in said disk array controller refers to said performance in said storage controller and said performance in other storage controllers and makes said port processor continue executing a backup task in other storage controller.

26. Storage system according to claim 22, wherein said processor in said disk array controller makes said port controllers continue executing said backup task simultaneously.

27. Storage system according to claim 22, said disk controller further comprising, an interface apparatus having an user interface to indicate a backup

task.

28. Storage system according to claim 27, wherein said interface apparatus sets said process type information to each said port controller.

29. Storage system according to claim 27, wherein said port controller connects to said host and said other storage systems via fibre channel network.